Amendments to the Claims:

The listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently amended) A method of enhancing the phosphorus nutrition of a plant, comprising the step of growing said plant in a medium comprising phytate, wherein the plant ectopically ~~expressing~~ expresses in ~~the root~~ its roots ~~of a plant~~ an isolated nucleic acid molecule encoding a phytase polypeptide and said phytase polypeptide is secreted from the roots, and wherein said plant has enhanced phosphorus nutrition relative to an isogenic non-transformed plant. ~~for a time and under conditions sufficient for said phytase to be secreted from the root.~~

2. (Currently amended) The method according to claim 1 wherein the secretion of said phytase from the roots ~~root~~ is achieved by ectopically expressing the phytase as a fusion protein with a secretory signal peptide.

3. (Original) The method according to claim 2 wherein the secretory signal peptide is selected from the group consisting of the carrot extensin signal peptide and the lupin acid phosphatase signal peptide.

4. (Original) The method according to any one of claims 1 to 3 wherein the phytase polypeptide is from *Aspergillus niger.*

5. (Currently amended) The method according to any one of claims 1 to 3 wherein the phytase polypeptide has an amino acid sequence having at least ~~about~~ 93% identity to SEQ ID NO: 2.

6. (Currently amended) The method according to claim 5 wherein the phytase polypeptide comprises amino acids having a sequence ~~is~~ selected from the group consisting of SEQ ID NO: 2 and SEQ ID NO: 4. ~~SEQ ID Nos: 2 and 4.~~

7. (Currently amended) The method according to claim 5 wherein the phytase polypeptide is encoded by a nucleotide sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO: 3, ~~SEQ ID Nos: 1, 3~~ and a degenerate nucleotide sequence thereto.

8. (Currently amended) The method according to claim 5 wherein the phytase polypeptide is encoded by a nucleotide sequence contained within the plasmid assigned AGAL Accession No. NM99/06795.

9. (Currently amended) A method of enhancing the phosphorus nutrition of a plant, comprising the step of growing said plant in a medium comprising phytate, wherein said plant ectopically ~~expressing~~ expresses in ~~the root of a plant~~ its roots an isolated nucleic acid molecule encoding a fusion polypeptide between a secretory signal peptide and a phytase polypeptide and ~~for a time and under conditions sufficient for~~ said fusion polypeptide ~~to be~~ is secreted from the roots ~~root~~, wherein said isolated nucleic acid comprises a nucleotide sequence selected from the group consisting of SEQ ID NO: 9, SEQ ID NO: 11, ~~SEQ ID Nos: 9, 11,~~ the phytase-encoding nucleotide sequence contained in the plasmid assigned AGAL Accession No. NM99/06795, and degenerate nucleotide sequences thereto, and wherein said plant has enhanced phosphorus nutrition relative to an isogenic non-transformed plant.

10. (Currently amended) The method according to claim 9 wherein the fusion polypeptide comprises an amino acid sequence selected from the group consisting of SEQ ID NO: 10 and SEQ ID NO: 12. ~~SEQ ID Nos: 10 and 12.~~

11. (Currently amended) ~~A method~~ The method according to claim 1, further comprising the step of ~~: (i) ectopically expressing in the root of a plant an isolated nucleic acid molecule encoding a phytase polypeptide for a time and under conditions sufficient for said phytase to be secreted from the root; and (ii)~~ modifying the chemistry of the ~~soil around the root or other growth~~ medium around the roots ~~root~~ using an organic acid.

12. (Original) The method according to claim 11 wherein the organic acid is citric acid.

13. (Currently amended) The method according to ~~claims~~ claim 11 or 12 wherein the secretion of phytase from the roots ~~root~~ is achieved by ectopically expressing the phytase as a fusion protein with a secretory signal peptide.

14. (Original) The method according to claim 13 wherein the secretory signal peptide is selected from the group consisting of the carrot extensin signal peptide and the lupin acid phosphatase signal peptide.

15. (Previously amended) The method according to any one of claims 11, 12 and 14 wherein the phytase polypeptide is from *Aspergillus niger.*

16. (Currently amended) The method according to claim 11 or 12 wherein the phytase polypeptide has an amino acid sequence having at least ~~about~~ 93% identity to SEQ ID NO: 2.

17. (Currently amended) The method according to claim 16 wherein the phytase polypeptide comprises amino acids having a sequence ~~is~~ selected from the group consisting of SEQ ID NO: 2 and SEQ ID NO: 4. ~~SEQ ID Nos: 2 and 4.~~

18. (Currently amended) The method according to claim 17 wherein the phytase polypeptide is encoded by a nucleotide sequence selected from the group consisting of SEQ ID NO: 1, SEQ ID NO: 3, ~~SEQ ID Nos: 1, 3~~ and a degenerate nucleotide sequence thereto.

19. (Original) The method according to claim 17 wherein the phytase polypeptide is encoded by a nucleotide sequence contained within the plasmid assigned AGAL Accession No. NM99/06795.

20. (Currently amended) ~~A method~~ The method accordingly to claim 9, further comprising the step of ~~: (i) ectopically expressing in the root of a plant an isolated nucleic acid molecule encoding a fusion polypeptide between a secretory signal peptide and a phytase polypeptide for a time and under conditions sufficient for said fusion polypeptide to be secreted from the root, wherein said isolated nucleic acid comprises a nucleotide sequence selected from the group consisting of SEQ ID Nos: 9, 11, a phytase-encoding nucleotide sequence contained within the plasmid assigned AGAL Accession No. NM99/06795, and degenerate nucleotide sequences thereto and (ii)~~ modifying the chemistry of the ~~soil around the root or other growth~~ medium around the roots ~~root~~ using an organic acid.

21. (Original) The method according to claim 20 wherein the organic acid is citric acid.

22. (Currently amended) The method according to ~~claims~~ claim 20 or 21 wherein the fusion polypeptide comprises an amino acid sequence selected from the group consisting of SEQ ID NO: 10 and SEQ ID NO: 12. ~~SEQ ID Nos: 10 and 12.~~

23. (Currently amended) The method according to any one of claims 11, 12, 20, and 21 wherein the growth of said plant is enhanced and/or the phosphorus content of said plant is increased, relative to an isogenic non-transformed plant. ~~when~~

~~used to enhance the phosphorus nutrition of a plant or the growth of a plant on a phosphorus source comprising phytate and/or increase the phosphorus content of a plant.~~

24. (Currently amended) The method according to any one of claims 11, 12, 20, and 21 wherein the biomass produced by said plant is enhanced, relative to an isogenic non-transformed plant. ~~when used to enhance the biomass produced by a plant~~ .

25. (Currently amended) The method according to any one of claims 11, 12, 20, and 21 wherein the rate of hypocotyl production or the rate of epicotyl production of said plant is enhanced, relative to an isogenic non-transformed plant. ~~when used to enhance the rate of hypocotyl production or the rate of epicotyl production.~~

26. (Currently amended) A transformed plant growing in a medium comprising phytate, wherein said plant ~~that~~ ectopically expresses ~~a secretable phytase polypeptide~~ in its roots an isolated nucleic acid molecule encoding a phytase polypeptide and ~~wherein~~ said phytase polypeptide is secreted from the roots, ~~of said plant, wherein said plant is produced by a process comprising performing the method according to any one of claims 1 to 25~~ and wherein said plant has enhanced phosphorus nutrition relative to an isogenic non-transformed plant growing in said medium.

27. (Currently amended) A progeny plant ~~Progeny~~ of the transformed plant of claim 26, wherein said progeny plant is growing in a medium comprising phytate, and wherein said progeny plant ectopically expresses in its roots said isolated nucleic acid molecule and ~~a secretable phytase polypeptide in its roots wherein~~ said phytase polypeptide is secreted from the roots. ~~of said plant.~~

28. (Currently amended) A ~~The~~ transformed plant growing in a medium ~~of claim 26 wherein said plant grows on a phosphorus source~~ comprising phytate, wherein said plant ectopically expresses in its roots an isolated nucleic acid molecule encoding a fusion polypeptide between a secretory signal peptide and a phytase polypeptide and said fusion polypeptide is secreted from the roots, wherein said isolated nucleic acid comprises a nucleotide sequence selected from the group consisting of SEQ ID NO: 9, SEQ ID NO: 11, the phytase-encoding nucleotide sequence contained in the plasmid assigned AGAL Accession No. NM99/06795, and degenerate nucleotide sequences thereto, and wherein said plant has enhanced phosphorus nutrition relative to an isogenic non-transformed plant growing in said medium. ~~more efficiently than an isogenic plant that does not ectopically express the phytase enzyme.~~

29. (Currently amended) A ~~The~~ progeny plant of the transformed plant of claim 28 ~~27~~ wherein said progeny plant is growing in a medium ~~grows on a phosphorus source~~ comprising phytate, and wherein said progeny plant ectopically expresses in its roots said isolated nucleic acid molecule and said phytase polypeptide is secreted from said roots. ~~more efficiently than an isogenic plant that does not ectopically express the phytase enzyme.~~

30. (Currently amended) The transformed plant of ~~claims~~ claim 26 or 28 wherein said plant exhibits ~~a larger~~ an increased biomass relative to ~~than~~ an isogenic plant that does not ectopically express the phytase polypeptide. ~~enzyme when grown on a phosphorus source comprising phytate.~~

31. (Currently amended) The progeny plant of ~~claims~~ claim 27 or 29 wherein said progeny plant exhibits ~~a larger~~ an increased biomass ~~than~~ relative to an isogenic plant that does not ectopically express the phytase polypeptide. ~~enzyme when grown on a phosphorus source comprising phytate.~~

32. (Currently amended) The transformed plant of ~~claims~~ claim 26 or 28 wherein said plant exhibits an enhanced rate of epicotyl or hypocotyl production ~~than~~ relative to an isogenic plant that does not ectopically express the phytase polypeptide. ~~enzyme when grown on a phosphorus source comprising phytate.~~

33. (Currently amended) The progeny plant of ~~claims~~ claim 27 or 29 wherein said progeny plant exhibits an enhanced rate of epicotyl or hypocotyl production ~~than~~ relative to an isogenic plant that does not ectopically express the phytase polypeptide. ~~enzyme when grown on a phosphorus source comprising phytate.~~

34-36 (Canceled)

37. (Currently amended) The transformed plant of claim 26 or progeny plant of claim 27, ~~process according to any one of claims 34 to 36~~ wherein the ~~secretion of~~ phytase polypeptide ~~from the root~~ is ~~achieved by~~ ectopically expressed ~~expressing the phytase~~ as a fusion protein with a secretory signal peptide.

38. (Currently amended) The transformed plant or progeny plant ~~process~~ according to claim 37, wherein the secretory signal peptide is selected from the group consisting of the carrot extensin signal peptide and the lupin acid phosphatase signal peptide.

39. (Currently amended) The transformed plant of claim 26 or progeny plant of claim 27, ~~process according to claims 34 or 35~~ wherein the phytase polypeptide is from *Aspergillus niger.*

40. (Currently amended) The transformed plant of claim 26 or progeny plant of claim 27, ~~process according to claims 34 or 35~~ wherein the phytase polypeptide has an amino acid sequence having at least ~~about~~ 93% identity to SEQ ID NO: 2.

41. (Currently amended) The transformed plant or progeny plant ~~process~~ according to claim 40 wherein the phytase polypeptide comprises amino acids having a sequence ~~is~~ selected from the group consisting of SEQ ID NO: 2 and SEQ ID NO: 4. ~~SEQ ID Nos: 2 and 4.~~

42. (Currently amended) The transformed plant or progeny plant ~~process~~ according to claim 40, wherein the phytase polypeptide is encoded by a nucleotide sequence selected from the group consisting of SEQ ID NO: 1, SEQ ID NO: 3 ~~SEQ ID Nos: 1, 3~~ and a degenerate nucleotide sequence ~~sequences~~ thereto.

43. (Currently amended) The transformed plant or progeny plant ~~process~~ according to claim 40, ~~5~~ wherein the phytase polypeptide is encoded by a nucleotide sequence contained within the plasmid assigned AGAL Accession No. NM99/06795.

44. (Previously amended) An isolated nucleic acid molecule encoding a mature phytase polypeptide without a phytase leader sequence and comprising a nucleotide sequence selected from the group consisting of: (i) the nucleotide sequence of SEQ ID NO: 1 or 9; (ii) a nucleotide sequence encoding the amino acid sequence of SEQ ID NO: 2 or 10; and (iii) a sequence that hybridises to a phytase-encoding nucleotide sequence contained within the plasmid assigned AGAL Accession No. NM99/06795 or a complementary nucleotide sequence thereto under high stringency hybridisation conditions.

45 (Previously amended) The isolated nucleic acid molecule of claim 44 comprising the nucleotide sequence set forth in SEQ ID NO: 1 or 9.

46. (Previously amended) The gene construct comprising the isolated nucleic acid molecule according to any one of claims 44 or 45 placed operably in connection with a promoter sequence that is operable in the root cells of a plant.

47. (Previously amended) The gene construct of claim 46 comprising the *PhyA-2* gene sequence set forth in SEQ ID NO: 1.

48. (Previously amended) The gene construct of claim 46 comprising the *ext::PhyA*-2 sequence set forth in SEQ ID NO: 9.

49. (Previously amended) The gene construct according to claims 46 consisting of the plasmid assigned AGAL Accession No. NM99/06795 .

50. (New) The transformed plant or progeny plant of claim 37, wherein the fusion protein comprises an amino acid sequence selected from the group consisting of SEQ ID NO: 10 and SEQ ID NO: 12.

51. (New) The method according to claim 1, wherein the medium comprises a plant fertilizer phytate.